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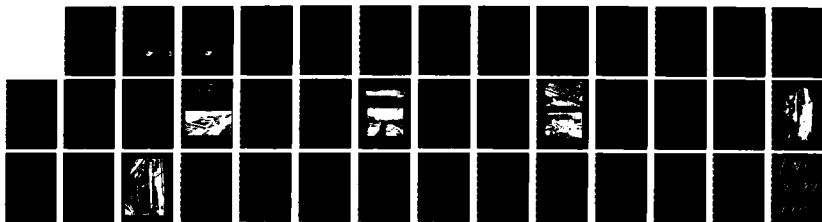
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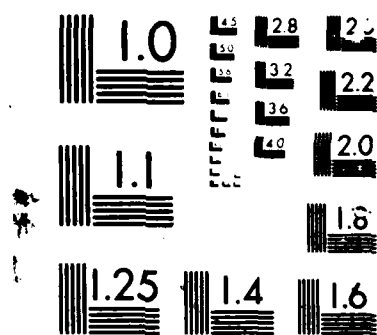
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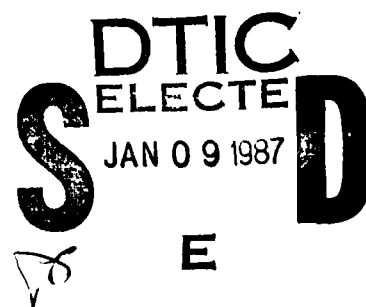
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HISTORIC PROPERTIES REPORT

LIMA ARMY TANK PLANT, OHIO

FINAL REPORT

JULY 1984



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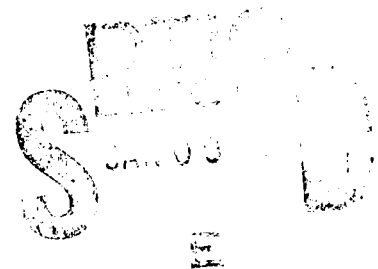
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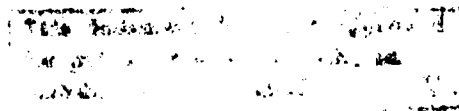
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EXECUTIVE SUMMARY

A part of the U.S. Army Tank Automotive Command (TACOM), Lima Army Tank Plant is a government-owned, contractor-operated facility responsible for manufacturing, shipping, and testing M-1 Abrams tanks and for providing select major tank components to Detroit Arsenal for assembly. Located about five miles south of the center of Lima, Ohio, the installation is situated on 373 acres and is composed of 48 buildings. The original contractor-operator, the Ohio Steel Foundry Company, directed initial construction at the site starting in May 1942. The Army conceived of the facility as a plant for manufacturing centrifugally cast gun tubes, but before production began it converted it to a tank depot for modifying and processing combat vehicles for export and domestic shipping. After World War II, as the Lima Ordnance Depot, the installation principally stored and preserved military vehicles. During the Korean War it reinitiated the modification and preparation of tanks for combat, but following the war there was only minor activity until Lima was selected in August 1976 as the initial production site for the M-1 tank. Since that time the facility has undergone considerable modification. The present contractor-operator of the tank plant is General Dynamics Corporation, Land Systems Division. There are no Category I, II, or III historic properties at Lima Army Tank Plant.



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PREFACE

This report presents the results of an historic properties survey of the Lima Army Tank Plant. Prepared for the United States Army Materiel Development and Readiness Command (DARCOM), the report is intended to assist the Army in bringing these installations into compliance with the National Historic Preservation Act of 1966 and its amendments, and related federal laws and regulations. To this end, the report focuses on the identification, evaluation, documentation, nomination, and preservation of historic properties at the Lima Army Tank Plant. Chapter 1 sets forth the survey's scope and methodology; Chapter 2 presents an architectural, historical, and technological overview of the installations and their properties; and Chapter 3 identifies significant properties by Army category and sets forth preservation recommendations. Illustrations and an annotated bibliography supplement the text.

This report is part of a program initiated through a memorandum of agreement between the National Park Service, Department of the Interior, and the U.S. Department of the Army. The program covers 74 DARCOM installations and has two components: 1) a survey of historic properties (districts, buildings, structures, and objects), and 2) the development of archeological overviews. Stanley H. Fried, Chief, Real Estate Branch of Headquarters DARCOM, directed the program for the Army, and Dr. Robert J. Kapsch, Chief of the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) directed the program for the National Park Service. Sally Kress Tompkins was program manager, and Robie S. Lange was project manager for the historic properties survey. Technical assistance was provided by Donald C. Jackson.

Building Technology Incorporated acted as primary contractor to HABS/HAER for the historic properties survey. William A. Brenner was BTI's principal-in-charge and Dr. Larry D. Lankton was the chief technical consultant. Major subcontractors were the MacDonald and Mack Partnership and Melvyn Green and Associates. The author of this report was Larry D. Lankton.

The complete HABS/HAER documentation for this installation will be included in the HABS/HAER collections at the Library of Congress, Prints and Photographs Division, under the designation HAER No. OH-31.

Chapter 1

INTRODUCTION

SCOPE

This report is based on an historic properties survey conducted in 1983 of all Army-owned properties located within the official boundaries of the Lima Army Tank Plant. The survey included the following tasks:

- Completion of documentary research on the history of the installation and its properties.
- Completion of a field inventory of all properties at the installation.
- Preparation of a combined architectural, historical, and technological overview for the installation.
- Evaluation of historic properties and development of recommendations for preservation of these properties.

Also completed as a part of the historic properties survey of the installation, but not included in this report, are 18 HABS/HAER Inventory cards documenting individual properties. These cards, which constitute HABS/HAER Documentation Level IV, will be provided to the Department of the Army. Archival copies of the cards, with their accompanying photographic negatives, will be transmitted to the HABS/HAER collections at the Library of Congress.

The methodology used to complete these tasks is described in the following section of this report.

METHODOLOGY

1. Documentary Research

The Lima Army Tank Plant, a part of the Army Tank-Automotive Materiel Readiness Command, was largely developed in the early years of World War II. Further construction took place during the Korean War and the late 1970s. Documentary research focused on the physical development of the installation and its pre-military history. The Ohio State Historic Preservation Office was contacted about possible historic properties at the Lima Army Tank Plant, but no properties were identified by this source.

Army records used for the field inventory included current Real Property Inventory (RPI) printouts that listed all officially recorded buildings and structures by facility classification and date of construction; the installation's property record card; and base maps, drawings, and photographs supplied by installation personnel. A complete listing of documentary material may be found in the bibliography.

2. Field Inventory

The field inventory was conducted by Larry D. Lankton during a two-day period in August 1983. Field inventory procedures were based on the HABS/HAER Guidelines for Inventories of Historic Buildings and Engineering and Industrial Structures.¹ All areas and properties were visually surveyed. Building locations and approximate dates of construction were noted from the installations' property records and field-verified.

Field inventory forms were prepared for, and black and white 35 mm photographs taken of all buildings and structures through 1945 except basic utilitarian structures of no architectural, historical, or technological interest. When groups of similar ("prototypical") buildings were found, one field form was normally prepared to represent all buildings of that type. Field inventory forms were also completed for representative post-1945 buildings and structures.² Information collected on the field forms was later evaluated, condensed, and transferred to HABS/HAER Inventory cards.

3. Historic Overview

A combined architectural, historical, and technological overview was prepared from information developed from the documentary research and the field inventory. It was written in two parts: 1) an introductory description of the installation, and 2) a history of the installation by periods of development, beginning with pre-military land uses. Maps and photographs were selected to supplement the text as appropriate.

4. Property Evaluation and Preservation Measures

Based on information developed in the historic overviews, properties were first evaluated for historic significance in accordance with the eligibility criteria for nomination to the National Register of Historic Places. These criteria require that eligible properties possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that they meet one or more of the following:³

- A. Are associated with events that have made a significant contribution to the broad patterns of our history.
- B. Are associated with the lives of persons significant in the nation's past.
- C. Embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction.
- D. Have yielded, or may be likely to yield, information important in pre-history or history.

Properties thus evaluated were further assessed for placement in one of five Army historic property categories as described in Army Regulation 420-40:⁴

Category I	Properties of major importance
Category II	Properties of importance
Category III	Properties of minor importance
Category IV	Properties of little or no importance
Category V	Properties detrimental to the significance of of adjacent historic properties

Based on an extensive review of the architectural, historical, and technological resources identified on DARCOM installations nationwide, four criteria were developed to help determine the appropriate categorization

level for each Army property. These criteria were used to assess the importance not only of properties of traditional historical interest, but of the vast number of standardized or prototypical buildings, structures, and production processes that were built and put into service during World War II, as well as of properties associated with many post-war technological achievements. The four criteria were often used in combination and are as follows:

- 1) Degree of importance as a work of architectural, engineering, or industrial design. This criterion took into account the qualitative factors by which design is normally judged: artistic merit, workmanship, appropriate use of materials, and functionality.
- 2) Degree of rarity as a remaining example of a once widely used architectural, engineering, or industrial design or process. This criterion was applied primarily to the many standardized or prototypical DARCOM buildings, structures, or industrial processes. The more widespread or influential the design or process, the greater the importance of the remaining examples of the design or process was considered to be. This criterion was also used for non-military structures such as farmhouses and other once prevalent building types.
- 3) Degree of integrity or completeness. This criterion compared the current condition, appearance, and function of a building, structure, architectural assemblage, or industrial process to its original or most historically important condition, appearance, and function.

Those properties that were highly intact were generally considered of greater importance than those that were not.

4) Degree of association with an important person, program, or event.

This criterion was used to examine the relationship of a property to a famous personage, wartime project, or similar factor that lent the property special importance.

The majority of DARCOM properties were built just prior to or during World War II, and special attention was given to their evaluation. Those that still remain do not often possess individual importance, but collectively they represent the remnants of a vast construction undertaking whose architectural, historical, and technological importance needed to be assessed before their numbers diminished further. This assessment centered on an extensive review of the military construction of the 1940-1945 period, and its contribution to the history of World War II and the post-war Army landscape.

Because technology has advanced so rapidly since the war, post-World War II properties were also given attention. These properties were evaluated in terms of the nation's more recent accomplishments in weaponry, rocketry, electronics, and related technological and scientific endeavors. Thus the traditional definition of "historic" as a property 50 or more years old was not germane in the assessment of either World War II or post-war DARCOM buildings and structures; rather, the historic importance of all properties was evaluated as completely as possible regardless of age.

Property designations by category are expected to be useful for approximately ten years, after which all categorizations should be reviewed and updated.

Following this categorization procedure, Category I, II, and III historic properties were analyzed in terms of:

- Current structural condition and state of repair. This information was taken from the field inventory forms and photographs, and was often supplemented by rechecking with facilities engineering personnel.
- The nature of possible future adverse impacts to the property. This information was gathered from the installation's master planning documents and rechecked with facilities engineering personnel.

Based on the above considerations, the general preservation recommendations presented in Chapter 3 for Category I, II, and III historic properties were developed. Special preservation recommendations were created for individual properties as circumstances required.

5. Report Review

Prior to being completed in final form, this report was subjected to an in-house review by Building Technology Incorporated. It was then sent in draft to the subject installation for comment and clearance and, with its associated historical materials, to HABS/HAER staff for technical review. When the installation cleared the report, additional draft copies were sent to DARCOM, the appropriate State Historic Preservation Officer, and, when requested, to the archeological contractor performing

parallel work at the installation. The report was revised based on all comments collected, then published in final form.

NOTES

1. Historic American Buildings Survey/Historic American Engineering Record, National Park Service, Guidelines for Inventories of Historic Buildings and Engineering and Industrial Structures (unpublished draft, 1982).
2. Representative post-World War II buildings and structures were defined as properties that were: (a) "representative" by virtue of construction type, architectural type, function, or a combination of these, (b) of obvious Category I, II, or III historic importance, or (c) prominent on the installation by virtue of size, location, or other distinctive feature.
3. National Park Service, How to Complete National Register Forms (Washington, D.C.: U.S. Government Printing Office, January 1977).
4. Army Regulation 420-40, Historic Preservation (Headquarters, U.S. Army: Washington, D.C., 15 April 1984).

Chapter 2

HISTORICAL OVERVIEW

BACKGROUND

The Lima Army Tank Plant in Allen County, Ohio, is attached to the Army Office of the Program Manager for Abrams Tank System, headquartered in Warren, Michigan. Lima's primary mission is to manufacture, test, and ship M-1 Abrams Main Battle Tanks. It also produces tank components for assembly at the Detroit Arsenal. The facility occupies 373 acres and contains 48 buildings, including an industrial complex, administrative offices, and a small number of houses. (Illustration 1)

Since World War II, this facility has been charged with several different missions and has experienced various degrees of utilization. Construction at the site commenced in May 1942, with the intention of establishing a government-owned, contractor-operated plant for manufacturing centrifugally cast gun tubes. The Army terminated that mission within the year, however, before the plant was completed. A new process for piercing seamless steel tubing to form light artillery pieces made the casting plant unnecessary, and the Lima facility was diverted to serve as a tank depot for modifying and processing new combat vehicles.

Between World War II and the Korean War, as the Lima Ordnance Depot, the facility provided long-term storage for military vehicles. During the Korean War era, it briefly operated the Ordnance New Vehicle Maintenance School, and it reinitiated the work of modifying and preparing tanks. Following the Korean War, little activity occurred at Lima from the late 1950s to the

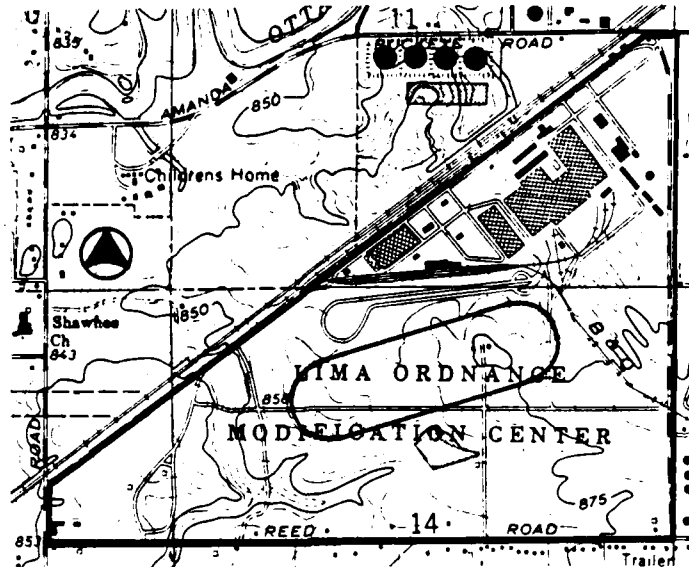


Illustration 1 Map showing boundaries of Lima Army Tank Plant, located five miles south of Lima, Ohio. (Source: 7.5 minute U.S.G.S. map, Cridersville, Ohio quadrangle)



Illustration 2 Aerial view (looking south) of the Lima Army Tank Plant. Photo taken prior to the renovation of the plant for M-1 tank production, which started in 1977. (Source: General Dynamics)

mid-1970s. The government outleased some of the land and buildings for commercial use, and part of the facility was used by the Faze Army Reserve Training Center, the U.S. Marine Corps Reserve, the Ohio National Guard, and the General Services Administration. Lima also received and stored machine tool equipment packages that could be mobilized quickly, if necessary, to produce medium combat vehicles.¹

The second half of the 1970s saw a very significant increase in the intensity of Army utilization of the facility. As the Lima Army Modification Center, it received, inspected, and processed 12,400 new M880, 1-1/4-ton trucks for military service. The center rehabilitated the industrial plant equipment it held in storage, preparing more than 600 machines for use. In August 1976 the Army selected the facility as the first production site of the new M-1 Abrams tank. A \$40 million project substantially upgraded Lima's physical plant and production capabilities. The contractor-operator during the early phase of M-1 production was the Chrysler Corporation (or Chrysler Defense, Inc.). Since 1982, General Dynamics has operated the facility, currently designated the Lima Army Tank Plant.

WORLD WAR II TO 1950

In May 1942, the Ohio Steel Foundry began building a government-owned, contractor-operated plant about five miles south of the center of Lima, Ohio. Located on open land previously used for agricultural purposes, this plant was to produce centrifugally cast gun tubes.² But the plant was rendered unnecessary for this purpose before it was completed. A new process for forming light artillery pieces had been perfected that used pierced, seamless tubes instead of castings. Only a few months after construction at Lima had

begun, the Ordnance Corps decided to use the facility not for gun-tube manufacture but as a depot for modifying and processing tanks and other combat vehicles.

In November 1942, a General Motors subsidiary, United Motors Service, took over the Lima installation and operated it under contract. Before the war was over, more than 100,000 combat vehicles passed through Lima. The facility tested tanks and other vehicles received from manufacturers; it sighted guns, added military equipment such as radios, painted on insignias, and processed the vehicles for export shipment.³ Vehicles were protected from the elements and sea water by being packaged in water-tight crates or having all their openings and seams sealed or caulked.⁴

The physical plant that supported this work stood on a site originally covering 170 acres. Sale of a 7-acre parcel in 1943 reduced the installation's size to 163 contiguous acres, which remained unchanged until 1951.⁵ Most of the original World War II construction was completed in 1942-43, and these buildings (in particular Building 147) still form the core of the Lima Army Tank Plant. (Illustrations 2 and 3)

The Detroit architectural engineering firm of Shreve, Anderson, and Walker worked on the planning and design of the Lima installation from March to September 1942. Their contract was then terminated, and completion of the architectural and engineering work fell to another Detroit firm headed by William Edward Kapp.⁶



Illustration 3 Historic photo of Building 147, probably taken shortly after World War II. In particular, note the original glazing.
(Source: General Dynamics)



Illustration 4 Historic photograph of the interior of Building 147. Probably taken shortly after World War II, when Lima stored military vehicles returned from overseas. (Source: General Dynamics)

The Lima plant opened in 1943 and Building 147, the primary factory building in the new industrial complex, contained the lines where most of the modification and processing work on vehicles was done. Irregular in plan, Building 147 originally provided 582,000 square feet of floor space. This steel-frame, high-bay structure in many ways typified large auto factory architecture of the period. The curtain walls, from nearly ground line to roof line, were glazed with single-pane glass set in steel sash.

During World War II, approximately 50 numbered buildings or structures stood at Lima.⁷ In addition to Building 147, major structures completed in 1942-43 that still exist at the installation include the following:

- Building S-121, a wood-framed fire station and guardhouse which retains its original function;
- Building 125, a heavy equipment shed which now serves as a general purpose warehouse;
- Building 142, a boiler house and maintenance shop which still performs the same functions;
- Building 322, a post-engineering warehouse which now serves as a maintenance, paint, and adhesive shop;
- Building S-70, a square, two-story, wood-frame administration building still serving in the same capacity;
- Building S-143, post-engineering shops, offices, and a box shop which now serves as a facility engineer maintenance shop;

- Building S-75, a wood-framed, single-story BOQ and officers' club now serving as a storage shed.

Other extant 1942-43 properties, much smaller in size, include water wells (Buildings S-5, S-78, and S-344), sewage pumps (Buildings S-52 and S-174), a scale house (Building S-292), a small storehouse (Building S-262), and a shed-like waiting station (Building S-723).

With the cessation of hostilities in 1945, the Army faced a new problem: instead of shipping new weapons overseas, it had to receive war material coming back to the United States. The Lima Tank Depot was redesignated the Lima Ordnance Depot and from late 1945 to 1950 assisted in the post-war effort by serving as a home for moth-balled tanks and other military vehicles. (Illustrations 4 and 5)

Only one structure of any size was constructed that still survives from this period, Building 345, a general purpose warehouse. Other structures built at this time to provide long-term, dehumidified storage were not placed on the original grounds of the installation, but on a separate 99-acre site about three miles away. The Army purchased this land immediately after the war; vehicles were parked on 210 circular concrete pads, then cylindrical containers, originally intended for gasoline storage, were placed over them.⁸ The Army divested itself of the storage containers and this 99-acre parcel in the late 1950s and early 1960s.⁹ (Figure 6)



Illustration 5 Circa 1957 photograph of the hard-stand parking area at Lima for military vehicle storage. (Source: General Dynamics)



Illustration 6 Post-World War II photograph of the long-term storage farm attached to the Lima facility. This storage farm sat on a separate 99-acre site, which was sold at auction in the early 1960s. (Source: General Dynamics)

KOREAN WAR TO 1975

With the outbreak of hostilities in Korea, the Lima installation again resumed the role of modifying and preparing tanks for shipment overseas. More new buildings were erected at Lima from 1951 to 1953 than at any other time except during initial construction in 1942-43. The Army also significantly expanded the installation's boundaries by buying several contiguous land parcels just southeast of the original base. The parcels covered 295 acres, bringing the total size of the installation to 458 acres by June 1951.¹⁰

This land acquisition provided room for building a test track for tanks and more space for future expansion. With the land came several modest, privately-owned dwellings that the Army has since used for military housing and/or storage. The houses, none of which are of architectural or historical interest, include Building 442 (ca. 1950); Building 443 (ca. 1950); Building 452 (ca. 1935-40); and Building 874 (ca. 1900-1925).¹¹ Detached garages accompany most of these dwellings.

In addition to acquiring buildings through purchase, the Army erected about 10 new structures between 1951 and 1953 that still stand; all are utilitarian in their design and construction. The two largest structures are the nearly identical, Butler-type storage buildings (Buildings 186 and 351), each of which provide about 115,000 square feet of warehouse space. Other warehouses or storage buildings erected at that time were Buildings S-96, S-343, and 345. The Army also constructed a water treatment plant (Building 67), a fire protection storage shed (Building 111), a coal-car shelter (Building 132), a coal sample structure (Building 162), and an incinerator (Building 390).

When the Korean War ended, so did the need for tank modification at Lima. Activity and construction at the installation fell off sharply, and this condition held for two decades, even through the Vietnam War. From 1954 through 1975, only a few structures were erected, all of very modest size and purpose: Building 391 (flammable materials storage, built 1954); Building S-95 (general purpose warehouse, 1955); Building 693 (water pumping plant, 1959); and S-74 and S-76 (sentry stations, 1973 and 1974). During this period the size of the tank family was reduced to 373 acres when the Army released land to the Fize Reserve Center and to Johnny Appleseed Park.

M-1 TANK ERA, 1976 TO THE PRESENT

Only in the second-half of the 1970s did the Army again fully exploit the industrial capabilities of the Lima installation. As was true in both World War II and the Korean War, expansion of activity centered on tank production. This time, however, Lima would not modify or process tanks manufactured elsewhere -- it would build tanks itself.

Throughout the 1960s the Army had looked for a replacement for its M-60 tank. It sought a "supertank" -- a high-tech combat vehicle that would be faster and carry more fire power and more effective armor. Through a joint research and development project conducted with West Germany, the Army devised its first supertank prototype by the mid-1960s, the MBT-70.¹² Plagued by a host of technical, economic, and political problems, the MBT-70 failed to gain acceptance, and the search continued for a new American-bred supertank that could stand against the Warsaw Pact tanks in Europe. In the early to mid 1970s, two auto giants -- General Motors and Chrysler -- competed

against one another to develop a new supertank along design guidelines set by the Army. (Chrysler had been in the tank manufacturing business since the start of World War II, when it began operating the Detroit Arsenal Tank Plant in Warren, Michigan.) In 1975, Chrysler produced a prototype of what would become the M-1 Abrams Main Battle Tank, and in November 1976, the Defense Department selected this tank to put into production. (Illustration 7)

The M-1 was the first all new U.S. tank in some 25 years. Weighing nearly 60 tons and powered by a 1,500 horsepower Avco Lycoming turbine engine, the tank could reach speeds on pavement of up to 45 miles per hour, and on open fields of 30 miles per hour. The early M-1s carried a 105-mm cannon whose accuracy and first-strike killing capabilities were aided by a laser range finder and a ballistic computer. For crew safety, the tank design incorporated a fire extinguisher system and placed men and main ammunition storage in separate compartments divided by armored bulkheads and doors. Perhaps most importantly, the M-1 tank used a new super alloy, composite-material, laminated armor intended to provide a high degree of protection against rocket and artillery fire.¹³

In August 1976, the Army selected the Lima Army Modification Center as the site for initially producing the new supertank.¹⁴ Chrysler operated the Lima production facility as well as the second plant to manufacture the M-1, the Detroit Arsenal Tank Plant. In receipt of a long-term order for some 7,000 tanks, Chrysler began the production of M-1s at Lima in May 1979, and delivered the first two production-model tanks to the Army in February 1980.



Illustration 7 The Army's first production supertank -- the M-1 Abrams
Main Battle Tank. (Source: The Historical Office, TACOM)

Chrysler Corporation, however, did not long remain the contractor-operator of the Lima and Detroit tank plants. The beleaguered corporation was troubled on several fronts. First, the M-1 tank itself was under attack. Estimated production costs skyrocketed, and early test models failed to live up to performance expectations. In much of the press and in Congress the first M-1s were assailed as being too expensive, overly sophisticated in their technology, unreliable, and vulnerable to attack from less expensive anti-tank weapons.¹⁵ Design modifications and further testing enhanced the M-1 and made it far less controversial, but Chrysler by that time was approaching bankruptcy and seeking a federal government "bail-out" in the form of guaranteed loans.¹⁶

The Army, seeing the sole manufacturer of the new tank flirting with disaster, demanded that Chrysler Corporation create a new subsidiary for M-1 production, Chrysler Defense, whose assets would be protected from seizure if the Chrysler Corporation went bankrupt.¹⁷ While the parent company continued to wallow in red ink, Chrysler Defense, because of its military contracts, proved profitable. In 1979, Chrysler Defense earned profits of \$37.6 million, while Chrysler Corporation suffered losses in excess of \$1 billion.

In an effort to raise capital, Chrysler sold off Chrysler Defense to General Dynamics in March 1982 for \$348.5 million. General Dynamics took over M-1 production at both Lima and Detroit, as well as the continuing production of M-60 tanks at Detroit.¹⁸ The new contractor-operator, while inexperienced in tank manufacture, was nevertheless highly experienced in defense

contracting. In 1980, General Dynamics had led all defense contractors in the nation with \$3.5 billion in orders from the Pentagon. The corporation, through its new Land Systems Division, added tanks to its list of military hardware that already included nuclear submarines, fighter planes, and cruise missiles.¹⁹

The initiation of M-1 tank production spurred a \$40 million rehabilitation of the Lima Army Modification Center, now redesignated the Lima Army Tank Plant. Building S-73, a new single-story, prefab office building, was erected and many of the older buildings in the plant were renovated. The two biggest projects involved construction of a 1.5 mile tank test track and a 250,000 square foot addition to Building 147.²⁰ Building 147 also received a new skin; the original curtain wall of single-pane glass gave way to insulated metal panels, greatly altering the building's appearance. Within the building, modern cutting, welding, machining, and assembly equipment was installed to provide for a M-1 production rate of 30 tanks per month. (Illustration 8)

NOTES

1. U.S. Army Tank-Automotive Material Readiness Command, "Historical Overview — Lima Army Tank Center," (3 March 1980), pp. 2, 3.
2. Joe Ionne, "Revival at 'Lima Tank'," in Columbus Dispatch Sunday Magazine (January 2, 1977), p. 8.
3. "Historical Overview," p. 1.
4. Ionne, "Revival," p. 8.
5. For a list of properties purchased/sold at Lima, see General Dynamics Corporation, "Lima Tank Plant, Installation Real Property Utilization Survey, Data Item L056," (15 April 1983), p. 6.
6. Information on the engineering/architectural firms was provided by General Dynamics personnel in an oral interview. August 1983.



Illustration 8 Aerial view (looking southwest) of the Lima Army Tank Plant. The Administration Building (S-70) is in the right foreground. The main manufacturing building (I-47) is shown re-clad in insulated metal panels, and with its major addition (left side) put up to facilitate M-1 tank production. (Source: General Dynamics)

7. See Lima Ordnance Depot Plot Plan, Drawing Number L. O. D. 617, 13 August 1947.
8. "Historical Overview," p. 1; General Dynamics, "Basic Information Components of the Master Plan for the Lima Army Tank Plant," (June 10, 1983), p. 3.
9. "Historical Overview," p. 1; General Dynamics, "Basic Information Components," p. 4.
10. General Dynamics, "Data Item L056," p. 6.
11. The construction dates for these structures were determined through visual inspection in August 1983. The dates given here differ from those found on the Lima Real Property Inventory; that document gives construction dates of the early to mid 1950s. The RPI dates do not reflect original construction, but the dates when the properties were obtained through purchase, or the dates of structural renovations.
12. See "Tank of the Future for U.S. Army," U.S. News and World Report (October 23, 1967), p. 10; and "Trouble Now for U.S. Army's 'Tank of Future'," U.S. News and World Report (March 24, 1969), p. 12; Nicholas Wade, "NATO Builds a Better Battle Tank but May Still Lose the Battle," Science (July 14, 1979), pp. 136-140.
13. Malcolm W. Browne, "America's Mightiest Tank," Discover (June 1982), pp. 21-26; "Close-up of a New Supertank for the U.S. Army," U.S. News and World Report (August 2, 1976), pp. 53-54; "Tank Can Run, Shoot, and Vanish in a Puff of Smoke," Science (August 11, 1978), p. 511; "A Million Dollar Supertank for Army," U.S. News and World Report (March 10, 1980), p. 8.
14. "The Army: Tanking Up," Newsweek (November 22, 1976); "Why U.S. is Rushing a New Supertank," U.S. News and World Report (May 21, 1979), p. 8.
15. "Worst Enemy of the Army's New M1 Tank May Have Been Itself, U.S. Testing Shows," Wall Street Journal, September 20, 1982; Dayton Daily News, August 29, 1982; "The XM-1 Tank's No-Win Future," Business Week (May 14, 1979), p. 112.
16. Lima News, February 27, 1983; "Winning the War: M-1 Tank Begins to Roll Over Its Critics," Barron's (February 7, 1983), pp.1-3.
17. Wall Street Journal, February 18, 1981.
18. General Dynamics, "Data Item L056," p. 4.
19. Lima News, January 29, 1982.
20. General Dynamics, "Basic Information Components," p. 4.

Chapter 3

PRESERVATION RECOMMENDATIONS

BACKGROUND

Army Regulation 420-40 requires that an historic preservation plan be developed as an integral part of each installation's planning and long range maintenance and development scheduling.¹ The purpose of such a program is to:

- Preserve historic properties to reflect the Army's role in history and its continuing concern for the protection of the nation's heritage.
- Implement historic preservation projects as an integral part of the installation's maintenance and construction programs.
- Find adaptive uses for historic properties in order to maintain them as actively used facilities on the installation.
- Eliminate damage or destruction due to improper maintenance, repair, or use that may alter or destroy the significant elements of any property.
- Enhance the most historically significant areas of the installation through appropriate landscaping and conservation.

To meet these overall preservation objectives, the general preservation recommendations set forth below have been developed:

Category I Historic Properties

All Category I historic properties not currently listed on or nominated to the National Register of Historic Places are assumed to be eligible for

nomination regardless of age. The following general preservation recommendations apply to these properties:

- a) Each Category I historic property should be treated as if it were on the National Register, whether listed or not. Properties not currently listed should be nominated. Category I historic properties should not be altered or demolished. All work on such properties shall be performed in accordance with Sections 106 and 110(f) of the National Historic Preservation Act as amended in 1980, and the regulations of the Advisory Council for Historic Preservation (ACHP) as outlined in the "Protection of Historic and Cultural Properties" (36 CFR 800).
- b) An individual preservation plan should be developed and put into effect for each Category I historic property. This plan should delineate the appropriate restoration or preservation program to be carried out for the property. It should include a maintenance and repair schedule and estimated initial and annual costs. The preservation plan should be approved by the State Historic Preservation Officer and the Advisory Council in accordance with the above referenced ACHP regulation. Until the historic preservation plan is put into effect, Category I historic properties should be maintained in accordance with the recommended approaches of the Secretary of the Interior's Standards for Rehabilitation and Revised Guidelines for Rehabilitating Historic Buildings² and in consultation with the State Historic Preservation Officer.

- c) Each Category I historic property should be documented in accordance with Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) Documentation Level II, and the documentation submitted for inclusion in the HABS/HAER collections in the Library of Congress.³ When no adequate architectural drawings exist for a Category I historic property, it should be documented in accordance with Documentation Level I of these standards. In cases where standard measured drawings are unable to record significant features of a property or technological process, interpretive drawings also should be prepared.

Category II Historic Properties

All Category II historic properties not currently listed on or nominated to the National Register of Historic Places are assumed to be eligible for nomination regardless of age. The following general preservation recommendations apply to these properties:

- a) Each Category II historic property should be treated as if it were on the National Register, whether listed or not. Properties not currently listed should be nominated. Category II historic properties should not be altered or demolished. All work on such properties shall be performed in accordance with Sections 106 and 110(f) of the National Historic Preservation Act as amended in 1980, and the regulations of the Advisory Council for Historic Preservation (ACHP) as outlined in the "Protection of Historic and Cultural Properties" (36 CFR 800).

- b) An individual preservation plan should be developed and put into effect for each Category II historic property. This plan should delineate the appropriate preservation or rehabilitation program to be carried out for the property or for those parts of the property which contribute to its historical, architectural, or technological importance. It should include a maintenance and repair schedule and estimated initial and annual costs. The preservation plan should be approved by the State Historic Preservation Officer and the Advisory Council in accordance with the above referenced ACHP regulations. Until the historic preservation plan is put into effect, Category II historic properties should be maintained in accordance with the recommended approaches in the Secretary of the Interior's Standards for Rehabilitation and Revised Guidelines for Rehabilitating Historic Buildings⁴ and in consultation with the State Historic Preservation Officer.
- c) Each Category II historic property should be documented in accordance with Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) Documentation Level II, and the documentation submitted for inclusion in the HABS/HAER collections in the Library of Congress.⁵

Category III Historic Properties

The following preservation recommendations apply to Category III historic properties:

- a) Category III historic properties listed on or eligible for nomination to the National Register as part of a district or thematic group should be treated in accordance with Sections 106 and 110(f) of the National Historic Preservation Act as amended in 1980, and the regulations of the Advisory Council for Historic Preservation as outlined in the "Protection of Historic and Cultural Properties" (36 CFR 800). Such properties should not be demolished and their facades, or those parts of the property that contribute to the historical landscape, should be protected from major modifications. Preservation plans should be developed for groupings of Category III historic properties within a district or thematic group. The scope of these plans should be limited to those parts of each property that contribute to the district or group's importance. Until such plans are put into effect, these properties should be maintained in accordance with the recommended approaches in the Secretary of the Interior's Standards for Rehabilitation and Revised Guidelines for Rehabilitating Historic Buildings⁶ and in consultation with the State Historic Preservation Officer.
- b) Category III historic properties not listed on or eligible for nomination to the National Register as part of a district or thematic group should receive routine maintenance. Such properties should not be demolished, and their facades, or those parts of the property that contribute to the historical landscape, should be protected from modification. If the properties are unoccupied, they should, as a minimum, be maintained in stable condition and prevented from deteriorating.

HABS/HAER Documentation Level IV has been completed for all Category III historic properties, and no additional documentation is required as long as they are not endangered. Category III historic properties that are endangered for operational or other reasons should be documented in accordance with HABS/HAER Documentation Level III, and submitted for inclusion in the HABS/HAER collections in the Library of Congress.⁷ Similar structures need only be documented once.

CATEGORY I HISTORIC PROPERTIES

There are no Category I historic properties at Lima Army Tank Plant.

CATEGORY II HISTORIC PROPERTIES

There are no Category II historic properties at Lima Army Tank Plant.

CATEGORY III HISTORIC PROPERTIES

There are no Category III historic properties at Lima Army Tank Plant.

NOTES

1. Army Regulation 420-40, Historic Preservation (Headquarters, U.S. Army: Washington, D.C., 15 April 1984).
2. National Park Service, Secretary of the Interior's Standards for Rehabilitation and Revised Guidelines for Rehabilitating Historic Buildings, 1983 (Washington, D.C.: Preservation Assistance Division, National Park Service, 1983).
3. National Park Service, "Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines," Federal Register, Part IV, 28 September 1983, pp. 44730-44734.
4. National Park Service, Secretary of the Interior's Standards.

5. National Park Service, "Archeology and Historic Preservation."
6. National Park Service, Secretary of the Interior's Standards.
7. National Park Service, "Archeology and Historic Preservation."

BIBLIOGRAPHY

- Browne, Malcolm W. "America's Mightiest Tank." Discover. June 1982.
- Business Week. "The XM-1 Tank's No-Win Future." May 14, 1979.
- Donlan, Thomas G. "Winning the War: M-1 Tank Begins to Roll Over Its Critics." Barron's, February 7, 1983.
- General Dynamics, Land Systems Division. Basic Information Components of the Master Plan for the Lima Army Tank Plant. June 10, 1983.
- _____. Future Development Components of the Master Plan for the Lima Army Tank Plant. May 20, 1983.
- _____. Lima Tank Plant Installation Real Property Utilization Survey, Data Item LO56. April 15, 1983.
- Ionne, Joe. "Revival at 'Lima Tank'." Columbus Dispatch Sunday Magazine, January 2, 1977.
- Lima News. January 24, 1982; February 20, 1982; February 27, 1983.
- Mossberg, Walter S. "Army Thwarts Tank Threat Posed by Chrysler's Problems." Wall Street Journal, February 18, 1981.
- Newsweek. "Are Tanks Here to Stay?" September 27, 1982.
- _____. "The Army: Tanking Up," November 22, 1976.
- U.S. Army, DARCOM. Installation and Activity Information Summary for Lima Army Modification Center. September 30, 1977.
- _____. Real Property Inventory, Lima Army Modification Center. March 31, 1982.
- U.S. Army, TACOM. Historical Overview -- Lima Army Tank Center. March 3, 1980.
- _____. "Lima Selected for XM-1 Tanks." U.S. Army Tank-Automotive News, August 25, 1976.
- U.S. News and World Report. "A Million-Dollar Supertank for Army." March 10, 1980.
- _____. "Close-up of a New Supertank for the U.S. Army." August 2, 1976.
- _____. "Tank of the Future for U.S. Army." October 23, 1967.
- _____. "Trouble Now for U.S. Army's 'Tank of the Future.'" March 24, 1969.

_____. "Why U.S. is Rushing a New Supertank."
May 21, 1979.

Wace, Nicholas. "NATO Builds a Better Battle Tank But May Still Lose the Battle." Science, July 14, 1978.

_____. "Tank Can Run, Shoot and Vanish in a Puff of Smoke."
Science, August 11, 1978.

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